

# Service Manual

# Operation Manual

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## Preface

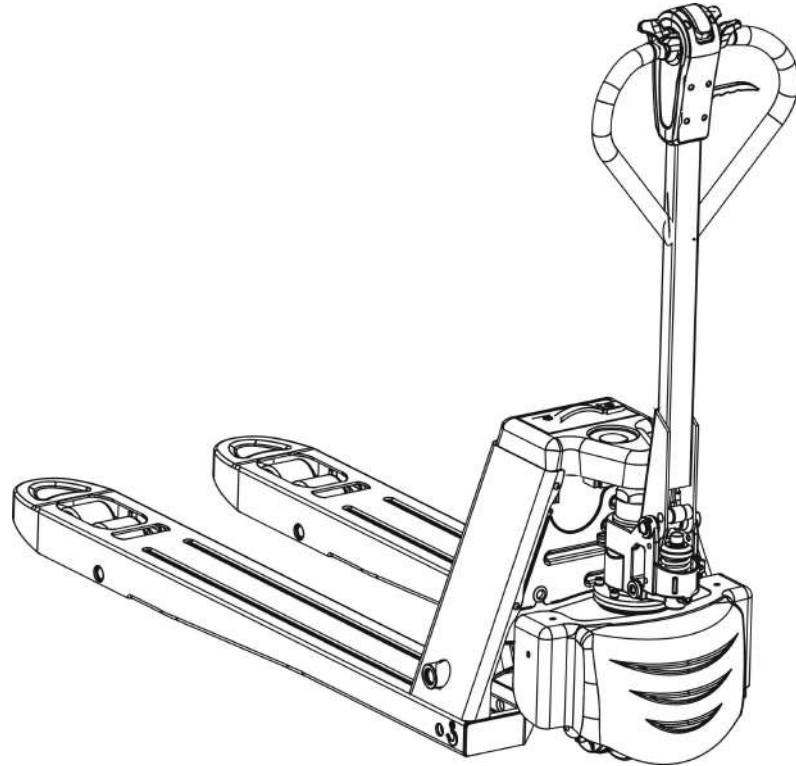
This operation manual will show you correct operating and maintaining skills for the electric pallet truck.

For personal safety and correct operation, users have to read this instruction manual carefully before using the product.

As products are constantly improved, this manual might slightly differ from the actual electric pallet truck you receive. The manual might also differ when your product is customized.

Our products are limited by Regulations on Safety Supervision of Special Equipment, users have to use our products in the specified area, like factory, warehouse, supermarket etc.

If you have any problems, you can contact the dealers.



**PPT18H/HQ(PPT40H/ HQ)  
Semi-Electric Pallet Truck**

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2020-12

Version No. PPTH-05

# Warning!

In order to ensure personal safety and property, the following rules must be strictly observed.

The pallet truck will have hidden danger, if you ignore to maintain it usually. Sufficient maintenance facilities, professional personnel, and maintenance schedules are required.

## **Semi-electric Pallet Truck usage, maintenance method and checking**

### **Rules:**

1. Users have to check and do maintenance on regular basis.
2. Rules of parking
  - No parking on the ramp.
  - The forks must be lower completely.
  - Press down the emergency stop button.
3. Before using the pallet truck
  - Users have to stand on the operational position.
  - Put handle in the driving position
  - Test lifting, steering, speed, operation, alarm and brake, to ensure all functions are normal.
4. Ensure the availability of firefighting facility in the workplace. Do not use flare to check battery and hydraulic system.
5. Check braking, driving, alarm and safety system on regular basis, maintain them in good working condition.
6. Keep the nameplate and warning stickers clean and readable.
7. Check and maintain lifting system regularly.
8. Check and maintain hydraulic system regularly. Ensure no oil leak of cylinder, hydraulic valve and other hydraulic system parts.
9. Park the semi-electric pallet truck in clean areas, to ensure the lowest possibility of fire.
10. Unauthorized modification is forbidden. Modification with manufacturer's consent should come with updated nameplate and warning stickers.

# Usage Rules

## **NOTICE OF USAGE**

1. Environment temperature 0-45 ° C; use in cold storage is prohibited;
2. To use on hard and flat ground, avoid sharp objects on the surface;
3. Use in heavy dusty environment is prohibited;
4. Use on watery, oily and muddy ground is prohibited;
5. Prohibited to caught in the rain, 10 minutes use in light rain;
6. Use in flammable, explosive, and corrosive environments is prohibited.

The pallet truck is a flat ground transport equipment as mentioned in this instruction. It is used for lifting and transporting goods. Users have to operate and maintain according to instruction rules. Using the product for applications not included in the instruction might cause damage to users, equipment or other property. Overload or unbalanced loading must be avoided. Loading capacity should strictly follow instructions on the nameplate or capacity diagram.

### **Responsibilities and obligations of users:**

In the instructions, the user refer to any natural person or legal person who directly uses or appoints someone to use the pallet truck. In the lease agreement, the lessor (Equipment owner) and the lessee (User) must reach an agreement, who carries out the responsibilities and obligations.

In order to ensure user and other peoples safety, users have to use the pallet truck according to electric pallet truck manual. Furthermore, users have to observe accident prevention regulations, other safety technology regulations, operation and maintain regulation. All users have to read and understand this instructions.

If user can not observe these regulations, the warranty period will lose efficacy acquiescently. We have no responsibility to bear the loss because of false operation by users or any other party.

Accessories Installation: Installing extra accessories that have impact on equipment function requires written approval from us. Some modification might require approval from local authorities. Result from local authorities don't represent ours.

# 1. Semi-electric Pallet Truck Introduction

## 1.1 Usage:

This semi-electric pallet truck series are designed for transporting on flat ground. It can be used for both open & closed pallets.

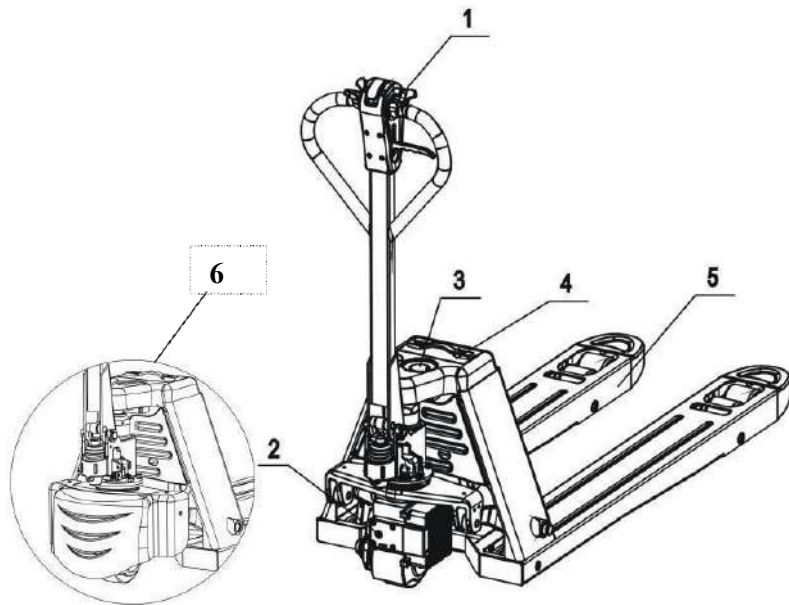
Temperature requirement

Working temperature range: 0 -45 degree Celsius .

Anti-freezing parts must be applied if the pallet

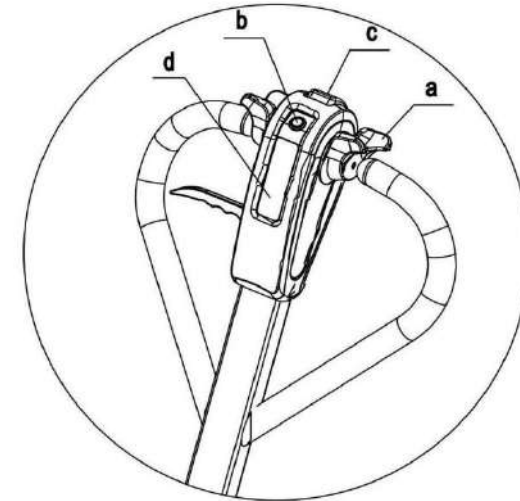
truck is used in cold room with temperature lower than 0 degree Celsius, or workplace with sharp change of temperature or moisture. This modification requires approval from us.

## 1.2 Semi-electric pallet truck unit



Number	Item	Number	Item
1	Handle assembly	4	Lithium battery
2	Drive motor assembly	5	Chassis
3	Emergency stop button	6	Protection cover

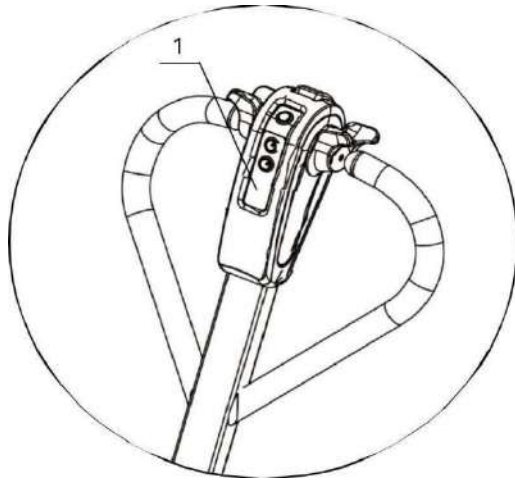
## 1.2.1 Handle Assembly



Ordinal	Item	Function
a	Drive throttle	Control forward and backward travel. Adjust travel speed
b	Horn button	Warning signal
c	Emergency reverse button	Protect users by emergent vehicle reversing.
d	Indicator screen	Show remaining power, working hours, and error code

## 1.2.2 Power & Error code Indicator

The screen will display remaining power and error code, working hours.

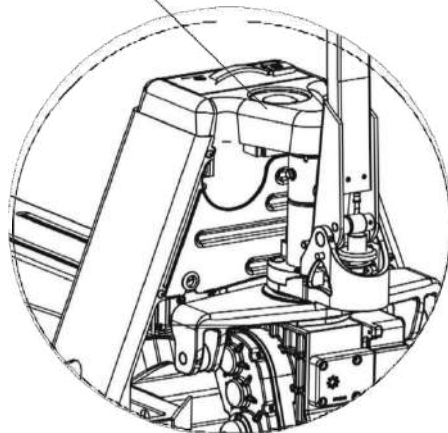


## 1.2.3 Emergency Stop Button(Power On/Off)

Press the emergency stop button to cut off electric system, all electric functions stop work and truck will be braked.





Pull up the Emergency stop button for power on, press down the button for power off.

**Emergency Stop Button**

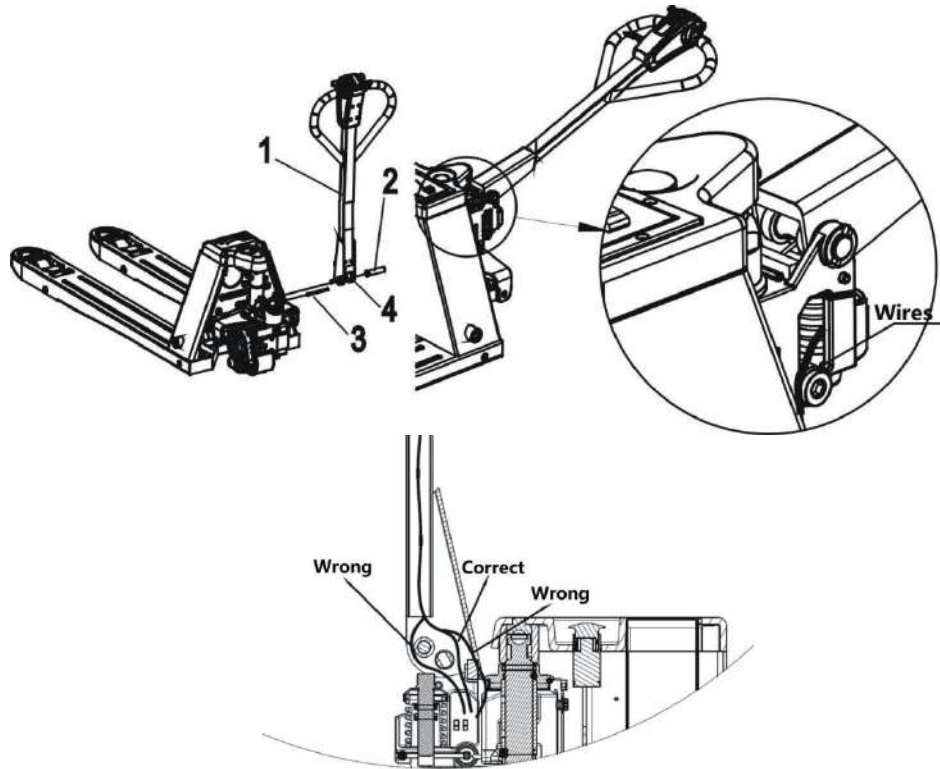


## 1.2.4 Intelligent Control (option)



Intelligent Control			
Technical Data			
1	Communication technology	RF	
2	Distance	2m	
3	Battery Type	Non-rechargeable alkaline battery	
4	Battery Model	L828(12V/27A)	
5	Battery Replacement	Available	
ICON	FUNCTION	OPERATION	Reminds
1	 Lock/Unlock	Under lock state, the vehicle cannot be operated. The vehicle can be operated in the unlock state; A vehicle with 2 intelligent control keys, different vehicles are not universal.  Unlock: Power on, press the button to open the lock with 2 beeps, the screen of the handle displays the symbol of unlock after operation successfully;  Lock: Press the button again, hear 1 beep, the operation is successful, the handle screen shows the lock symbol!	Unlock: 2 beeps + unlock symbol  Lock: 1 beep + lock symbol
2	 UP-Right Drive Mode	Press the button to enter the UP-Right Drive mode, the vehicle can move forward and backward in the upright state of the handle, and there is a beep warning sound, the handle screen shows the upright prompt, at the same time the vehicle speed is reduced to half of the set speed;  Press the button again to cancel the upright function, return to the normal mode, the beep warning disappears, and the driving speed is reset;	Up-Right drive: continuous beeps + screen display + speed deceleration  Normal: 1 beep + screen display + speed reset
3	 Traveling Speed Setting	Press the button to set the driving speed from Level 1 to Level 5; Level 1 speed 0.5km/h---> Level 2 speed 1.5km/h---> Level 3 speed 2.5km/h---> Level 4 speed 3.5km/h---> Level 5 full speed If the speed setting is successfully switched, the speed level information will be displayed on the screen once.  After setting the speed, there is memory function, the vehicle speed is still the last set speed after restart not back to full speed.	The handle screen display the speed level when switched
4	 Horn	Horn button: press and hold the button to keep beeps, release to stop beep.	Beep warning
TROUBLESHOOTINGS			
1	Signal light with little light or no light	Battery to be replaced or keys damaged	
2	Function button failure	The key is damaged, replace it	

## 1.2.4 Handle Installing

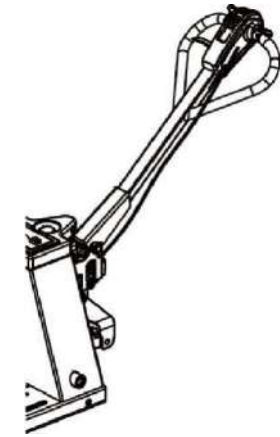
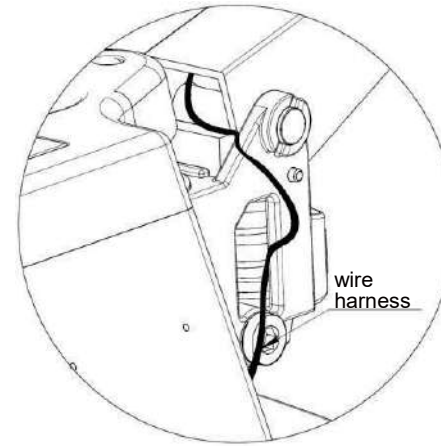


1. Handle(Picture No.1),match the holes of handle and hydraulic system.
2. Handle pins(Picture No. 2), the spring safety pin should be well rested in the holes situated on each side of the pump housing.
3. Chain(Picture No. 4)chain should be passed through the middle side hole of the handle pin and connected with the pump housing.
4. After above steps, pull the handle down to lowest position, remove the fixed spring safety pin (Picture No. 3) carefully to complete handle installing.
5. Handle assembly wire Harness installing: wire harness pass through hand tube, the wire harness twine method should be same as the above pictures.

## Wrong Wire Harness Twine Method

1.Wire harness passes outside hydraulic unit.

2.Wire harness passes outside handle





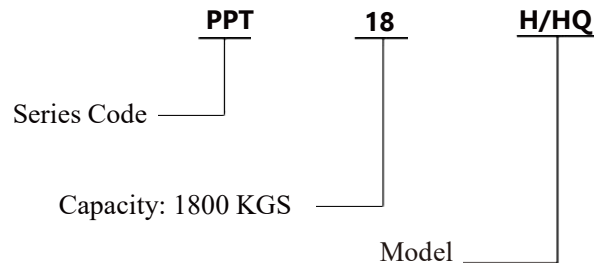
## 1.3 Nameplate and Model Instructions

Semi-electric pallet truck nameplate



Please offer the model number on the nameplate, if users want to consult after-sales technical service or purchase parts.

### Model Instruction:



## 1.4 Pallet Truck Specifications

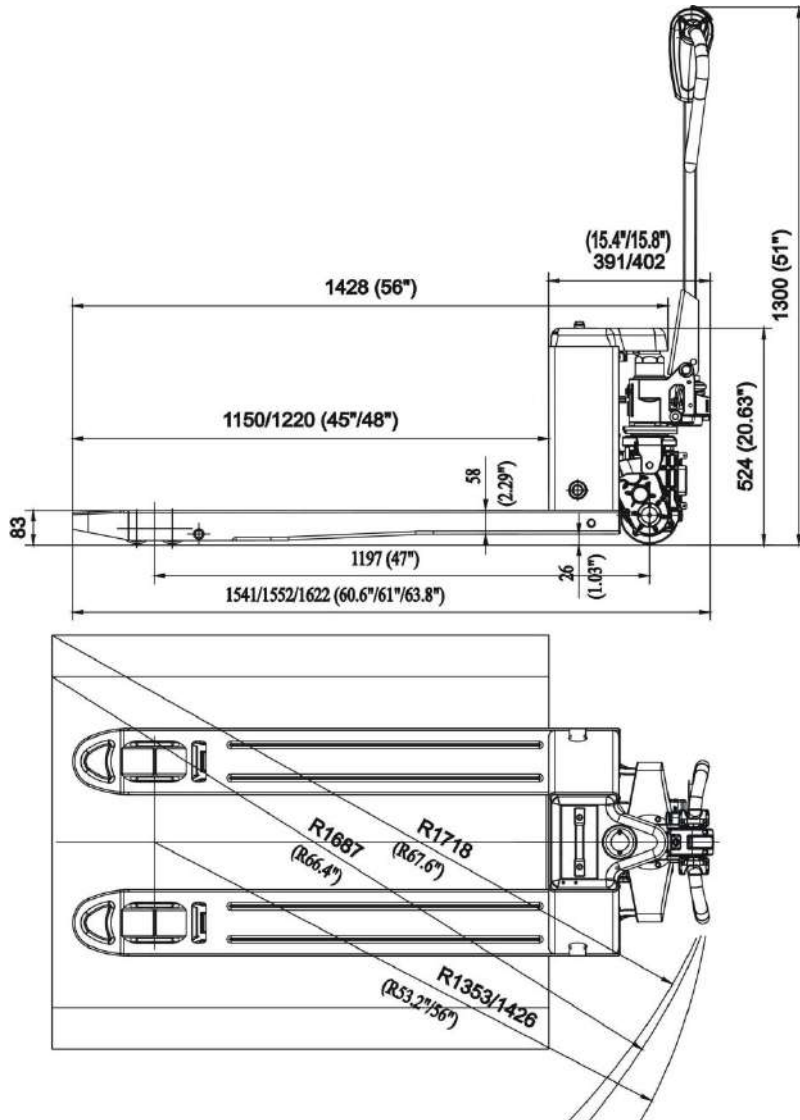
The following data is according to standard GB/T27542-2011, the producer has rights to update the data.

### 1.4.1 Specifications:

For PPT18HQ Quick lift model, when load capacity  $\leq 200\text{kgs}(440\text{lbs})$   
7 - 8 pumping fully raised forks.

Model		PPT18H(PPT40H)	PPT18HQ(PPT40HQ)	
Characteristics	Capacity	kg/lb	1800(4000)	
	Load center	mm/in	600(23.6)	
	Standard overall fork width	mm/in	550/685(21.6/27)	
	Fork length	mm/in	1150/1220(45/48)	
	Overall length	mm/in	1552/1622(61/63.8)	
	Overall height(with tiller)	mm/in	1300(51)	
	Rear body width	mm/in	550/685(21.6/27)	
	Minimum turning radius	mm/in	1353/1426(53.2/56)	
Performance	Max.Traveling speed	laden	km/h; mph	3.5(2.2)
		unladen	km/h; mph	5(3.1)
	Grade ability	laden	%	5
		unladen	%	20
Motor	Traveling	kw	DC 0.75 Brushless	
Pump	Lifting	/	Normal	QUICK LIFT
Battery	Voltage	V	48	
	Capacity/type	/	10Ah/15Ah	
	Travel brake	/	Regenerate	
Brake type	Brake	/	Electromagnetic	
Controller	Controller	/	STAXXB1501	

## 1.4.2 Dimensions



## Transport & First Time Operation

### 2.1 Transportation

#### Transporting, loading & unloading

1. Transporting equipment must bear the pallet truck weight.
2. Capacity of the transporting equipment must be bigger than pallet truck gross weight (with battery and wooden pallet weight).
3. The wooden pallet or box should be strong enough to bear the pallet truck weight, and big enough to pack it.
  - Park the pallet truck as instructed.
  - Truck forks should embed into the pallet completely to transport.

#### Notice!

- Avoid the fork legs were scratched by ground, when load the pallet truck into pallet.
- Avoid the pallet truck were scratched, please carry them on the flatground.
- Avoid the pallet truck drop down, please lifting and lowering the pallet carefully.

### 2.2 First Time Operation

Pallet truck should be driven by battery power only. Please check and test the pallet truck after transporting.

- Check if the equipment is complete in good working condition.
- Test if hydraulic system is working.
- Install the battery, avoid electric wires damage.
- Charge the battery.
- Wheels have ductility, it will have a little distortion after long time parking. This is normal. The wheels will restore to original shape after some time use.

## 3. Operation

### 3.1 Safety Rules

#### Operation Authority

Operator should be trained how to use the pallet truck by specific department. The operator need passed the test of operation skill and emergency processing, must be authorized by user or owner.

Operator Responsibilities, Obligations and Regulations:

The operators should be trained operation rules and passed tests by the grantors who must authorize the operator to use the pallet truck.

The operators have obligations to learn and understand this instruction completely.

The operators have responsibility to operate the pallet truck according to relevant rules and regulations.

It is important that the operators have to put on protective boots before operating the pallet truck.

Authorization and Operation Limits

Do not operate the pallet truck except authorized person. Do not use the pallet truck to carry and lift person.

Operators have responsibility of personal safety and pallet truck safety when they are operating the pallet truck.

Equipment problems process:

Please inform the supervisor when the pallet truck has any problems. Example: Wheels abrasion and brake stop working etc. It must be used after repair.

### Maintenance & Repair

Do not repair and refit the pallet truck without authorization, especially the switch and safety device.

Dangerous Area

Dangerous area is the area where person will be hurt. The main threats from pallet truck broken, bearing parts broken, driving, lifting & lowering goods. Example: area where the goods or parts will drop down.

- People cannot be allowed in the dangerous area except operator.
- Dangerous area must has the warning signs.
- Please stop working when other people in the dangerous area.

### Protective Devices & Warning Signs

Protective devices instructions and warning signs must be strictly observed according to the regulations of this instruction.

### 3.2 Pallet Truck Operation

#### 3.2.1 Preparatory work

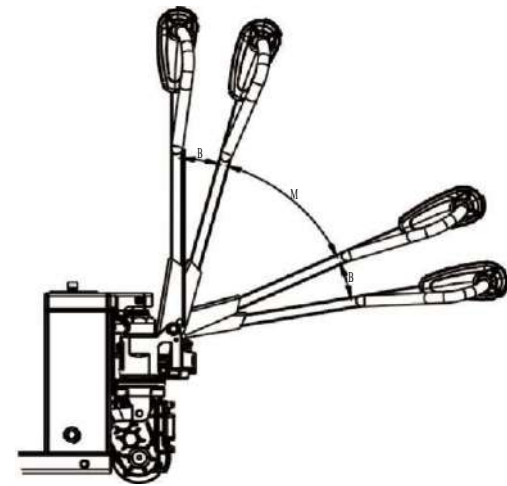
Operator must ensure there is no people in the dangerous area before working.

- Checking and testing the pallet truck before working.
- Observe the pallet truck to ensure no obvious damage on wheels or fork tips.

#### 3.2.2 Driving

##### Driving

Lower the handle into the M driving area. Shift driving throttle into backward driving and forward driving. The more throttle is pressed, the higher driving speed is.





### 3.2.3 Smart Function

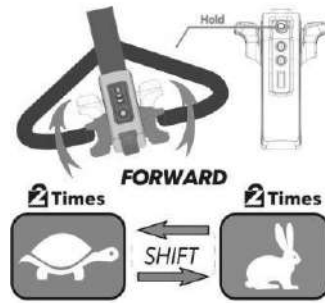
#### Up-Right Drive

Reverse Button & Forward Throttle Remain Pressed, Power On



#### Turtle Speed

Horn Remains Pressed & Forward 2 times



#### Engineering Mode (Brake Release)

Horn Remains Pressed & Power On



⚠ In up-right drive mode, vehicle will move when handle is operated at any position. Please avoid misoperation.

⚠ Brake release mode is only for emergencies, not allowed for vehicle with normal conditions.



ENVIRONMENT



USE ON WATERY, OIL AND MUDDY GROUND IS PROHIBITED



PROHIBITED TO CAUGHT IN THE RAIN 10 MINUTES USE IN LIGHT RAIN



TO USE ON HARD AND FLAT GROUND AVOID SHARP OBJECTS



PRESSURE UNDER HANDLE < 10kg WEIGHT



USE IN HEAVY DUSTY ENVIRONMENT IS PROHIBITED



USE IN CORROSIVE ENVIRONMENT IS PROHIBITED



USE IN FLAMMABLE ENVIRONMENT IS PROHIBITED



USE IN EXPLOSIVE ENVIRONMENT IS PROHIBITED

### Steering

Pull the handle to left side or right side as needed.

### Braking

#### Emergency Stop Button

Press the emergency stop button, all of electric devices will stop working.

#### Forced Brake

Method 1: Release the handle.

Method 2: Pull-down the handle into the B range (Picture 3.2-1).

Method 3: Pull-down the handle to lowest position.

### Electric Regenerative Braking

Release the driving throttle, the speed will be 0 km/h.

### Plug Braking

Turning the driving throttle to reversed side, the pallet truck stop until begin to travel reversed side.

### 3.2.4 Pick & Place Goods

It is dangerous if goods are stacked without rules.

### Notice !

The pallet truck step into automatic sleep mode if the truck stop use after 10 minutes, need to restart the truck for continue operation.

### Notice !

If the pallet truck still move slowly when the handle is in forced brake position, it is a problem, truck should be fixed immediately.

### Notice!

The driving throttle should be back to original position rapidly when it is released. If not, it is a problem.

### Notice !

Please make forced braking or plug braking in situations where danger might occur.

### Notice !

Before stacking the goods, please confirm the goods are correctly placed. Cargo weight must be lower than truck load capacity.

-Inform people to leave the working site. Operator must stop working if someone is in the dangerous working area.

-Pallet truck can only be used to transport correctly packed goods. Please take protective measures if goods face possibility of falling.

-Do not transport goods by broken loading equipment (Example: Pallet, pallet truck etc.)

-People are forbidden to enter or stay under any lifted goods.

-People are forbidden to enter any lifted goods.

-Do not use the pallet truck to lift people .

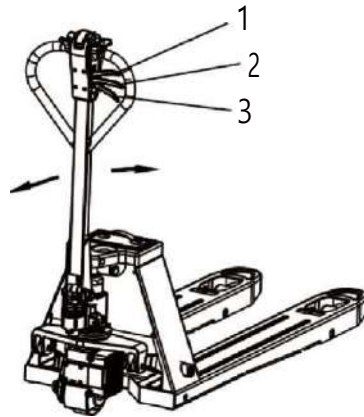
-Forks should be moving under the goods.

## Lifting

Press down lever to position No. 3, Move handle up and down until forks reach needed height.

## Lowering

Pull lever to position No. 1, until forks are lowered to bottom position. Adjust lever to position No. 2, operate forward and back.



## 3.2.5 Parking Regulation

Please park the pallet truck in the safety area when you leave it. Keep the forks at lowest position. Press down the emergency stop button and remove the key switch.

### Notice !

Do not park on the ramp. Goods must be fully lowered.

## Battery Usage & Maintenance

Basic Information and Performance of Lithium Battery								
Model	48V/10Ah; 48V/15Ah							
Capacity	10Ah/15Ah							
Voltage	48V							
Battery life	800~1000 charging and discharging cycles							
Applied models	PPT18H/PPT18HQ/EPT15H/EPT18H							
Work environment		Low temperature	0°C	45°C	55°C	75°C	High temperature	
Work environment	Room temperature	Use condition	Use allowed			Prohibited		
		Discharge capacity	Capacity loss	Normal Discharge		Prohibited		
		Battery life impact	No impact			Prohibited		
	Cold storage	Use condition	Use prohibited in cold storage (non-cold storage models)					
		Discharge capacity						
		Battery life impact						
Battery temperature	/	Use condition	Use allowed			Automatic battery protection		
		Discharge capacity	Capacity loss	Normal Discharge		Automatic battery protection		
		Battery life impact	No impact			Capacity loss	Automatic battery protection	
Charging environment temperature	/	Use condition	Charging Prohibited			Charging Prohibited(Automatic battery protection)		
		Battery life impact	Charging Prohibited			Charging Prohibited(Automatic battery protection)		
Battery parameter setting	~ 20°C	Voltage	39.2V	43.5V	44.5V	54.6V		
		Power display	Black screen	0%		4%	100%	
		Vehicle condition	No output, vehicle power	Vehicle stops	Speed decline		Normal	

## 4.1 Safety Instructions

### 4.1.1 Battery System Safety

Battery voltage range:40-54.6v

Do not soak in water

Precharge timely when low power, if not, it will damage the battery lead to fault.

Failure to operate in accordance with installation and use methods in this manual might cause threat to your life and property.

## Avoid fire

- Do not expose the lithium battery to an environment over 60 degree Celsius
- Do not put the lithium battery near any heat source, eg. stove, fireplace etc.
- Avoid direct strong sunlight
- Do not place the lithium battery near flammable and explosive objects.

## Avoid explosion

- Prohibit strong impact
- Prohibit piercing
- Prohibit throwing into fire

## Avoid electricity leakage

- Do not open the lithium battery
- Do not touch the lithium battery with wet hands
- Do not expose the lithium battery to moisture or liquids
- Do not place the lithium battery within easy reach of children or animals

## Avoid damage to battery system

- Prohibit contact with liquids and corrosive chemicals
- Prohibit high temperature and high pressure
- Prohibit stamping, dismantling, or hitting

## 4.2 Installation and Operating

### 4.2.1 Installation Environment

The environmental temperature of installing lithium battery should be between 0 degree and 40 degree, with no excessive humidity, to ensure the best operating environment; Avoid big temperature gap between two sides of the battery (5 degree Maximal)

## 4.2.2 Technical Parameters

Item	
Voltage	48V
Capacity	10/15Ah
Charging temperature	0~ 45°C
Discharging temperature	0~45°C
Storage temperature	0~45°C

## 4.3 Emergency Handling

Emergencies handling methods as below

### 4.3.1 Fire

If the product gets smoke and fire, please leave the site immediately. Disassembling or unauthorized repairing is strictly prohibited. Please contact our company or the authorized dealer for technical support as soon as possible.

### 4.3.2 Water

If the product becomes immersed in water, please leave the site immediately. Disassembling or unauthorized repairing is strictly prohibited. Please contact our company or the authorized dealer for technical support as soon as possible.

### 4.3.3 Unusual Smell

If the battery produces a distinct unusual smell, please remove the battery pack immediately. Avoid contact with leaked liquids and gases. Any sort of contact requires immediate cleaning up.

### 4.3.4 Necessary Safety Equipment

Self-contained breathing apparatus and personal protective equipment  
Heptafluoride propane fire extinguishing system

## 4.4 Supporting facilities and Precautions

### 4.4.1 Charging Requirements

Battery has built-in protection system, when the system has occurred discharge, the internal MOS will cut off the input, showing a high impedance state (OD), it need to charge the charger to activate. The maximum charge voltage of charger is 54.6V, use three-stage constant voltage charging, charging cut-off current is 0.3~0.5A.

Normal charging maintenance. When lithium battery is in stock, at least charge one time each three months..

### 4. 4. 2 Precautions

1. The battery is prohibited to charge in less than 0 degrees Celsius otherwise it will cause serious battery recession, or even a security incident.
2. The battery is prohibited to charge at low temperatures, but can use in not less than -20 degrees Celsius environment. But the capacity will be inadequate, this is a normal phenomenon.

Usage environment	Capacity
55°C	≥ 95 %
25°C	≥ 100 %
-10°C	≥ 50%

Note: Although the battery can be discharged at very low temperatures, but the process of taking battery out is easy to produce condensate water droplets, which will break the battery internal electronic devices and cause unpredictable dangers. If taken from the cold environment, battery needs to wait at least 4 hours to be charged.

3. The battery protection class is IP20, when installed in the machine, it is IP50. Please do not wash the battery directly with water.
4. If lithium battery is not in use for a long time, please charge it once every three months to half capacity. For full charge:  
10Ah battery: 2A charger takes 5 hours;  
15Ah battery, 6A charger takes 2.5 hours.  
And the best voltage is 48V to 50V. The best battery condition for storage is with half remaining power.
5. When battery is not used for long, please disconnect it from trucks, to avoid over discharging.

## 5. LCD Trouble Shooting

When controller detects failure, the truck stops working. LCD gives fault identification codes. The LCD uses two-digit code. Two short flashing and one long interval means 11, two short flashing, one short flashing and one long interval means 21, etc. Error code display on handle LCD screen

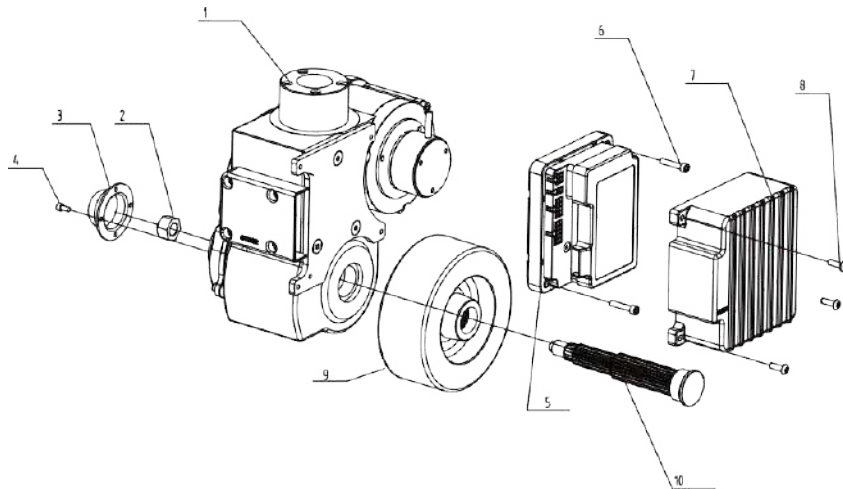
No	Error Code	Error	Possible Cause
1	11	Parameters wrong setting	Parameters setting is incorrect
2	12	Overcurrent	Motor short or controller fault or Hall signal interference
3	14	M+ current zero bit detection error	Controller failure
4	15	M- current zero bit detection error	Controller failure
5	16	Emergency reverse button has signal when turn on power	Emergency reverse button stuck or LCD monitor fault
6	18	Motor Hall fault	Motor Hall fault, connector fault or controller fault
7	19	Temperature sensor fault	Temperature sensor fault or sensor wires open
8	21	Potentiometer fault	Potentiometer fault or related wires fault
9	22	Overheat current limit	Controller overheated and in the current limit working state
10	23	Overheat protection	Controller overheated and shut down
11	25	Motor overheat limit	Motor temperature too high, limit the output
12	26	Motor Stalling	Motor Stalling protection
13	27	Brake fault	Brake fault, or related wires open
14	29	Motor open	Motor cable open or motor fault
15	31	Battery voltage low current limit	Low battery voltage, in the current limit working state
16	32	Low battery voltage protection	Low battery voltage, in shut down state
17	33	Over high battery voltage	Over high battery voltage
18	35	Contact error	Controller fault
19	38	Communication error	Screen monitor fault or related wires fault
20	39	Version error	Controller is in wrong version

Note: Error code might change due to updated controller versions. Please refer to the actual instructions on the controller or contact the technician.

## 6. Drive Wheel Disassemble Introductions

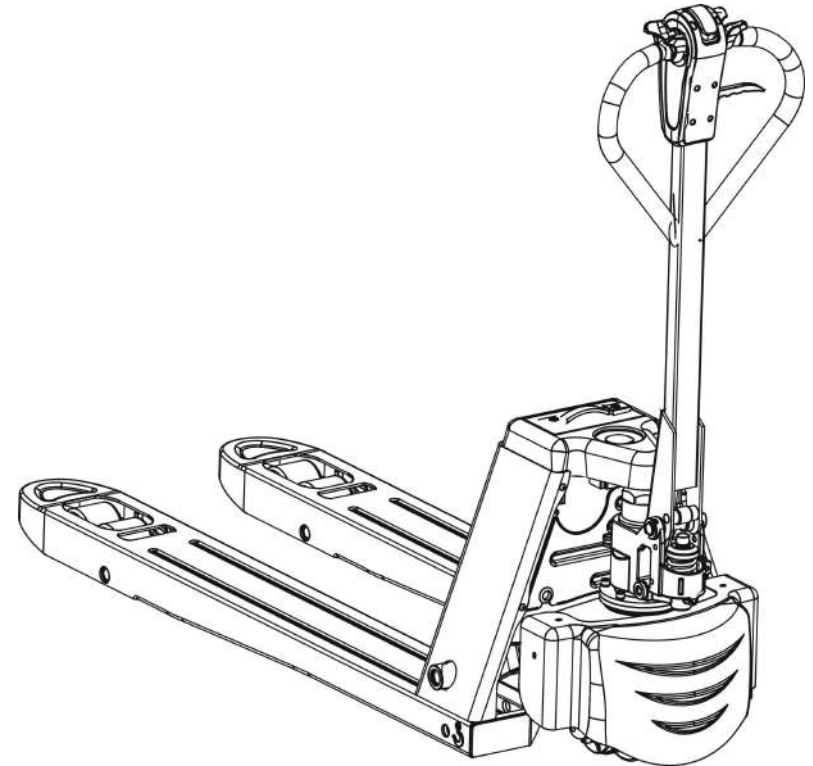
1. Let the drive wheel #10 suspend.
2. Dismantle controller cover (#7) by removing 3 bolts #8.
3. Loosen controller (#5) by removing 2 bolts #6. Avoid force on wires.
4. Dismantle nut cover (#3) by removing 4 bolts #4.
5. Remove nut #2, gently knock out the wheel shaft #9 and remove drive wheel #10.

No.	Reference	No.	Reference
1	drive assembly	6	bolt
2	nut	7	controller cover
3	nut cover	8	bolt
4	bolt x 4	9	drive wheel
5	controller	10	wheel shaft



## PPT18H/HQ( PPT40H/HQ) Semi-Electric Pallet Truck

### Parts Manual



**Warning** Read and observe all warnings on this unit before operating it.

**Warning** DO NOT operate this equipment unless all factory installed guards and shields are properly secured in place.

## **PARTS ORDERING INSTRUCTIONS**

### **HOW TO ORDER**

When ordering the parts, please supply part number, parts name, quantity, model and serial number of your machine. Supplying this information will assure prompt, efficient handling of your order.

Since your dealer carries many parts in stock and maintains up-to-date prices on all parts, he will be able to process your order immediately. If, for some reasons, the parts is not in stock, he will order it from the factory. In either event, he maintains a current file of service manuals, which give all available parts ordering or technical information.

### **WHERE TO ORDER**

Always order parts from the dealer who sold you the machine. If it is necessary for the dealer to order parts from the factory, he is able to get prompt service for you. Parts are shipped in accordance with shipping instructions given on the order.

### **INSTRUCTION FOR RETURNING PARTS**

Under NO CIRCUMSTANCES parts will be accepted at the factory for credit without prior approval. We can not accept responsibility for parts returned without authorization.

If you have some parts which must be returned, contact your dealer. If he believes parts be returned, he will arrange for authorization to return the parts.

### **CHANGES**

When changes are made to the machine, revised pages for this manual will be issued. These pages must be inserted in your parts manual as soon as they are received. Failure to keep your parts manuals up to date will result in confusion and may cause you to order wrong parts.

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2020-8 4th EDITION**

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Fig.1 Handle assembly

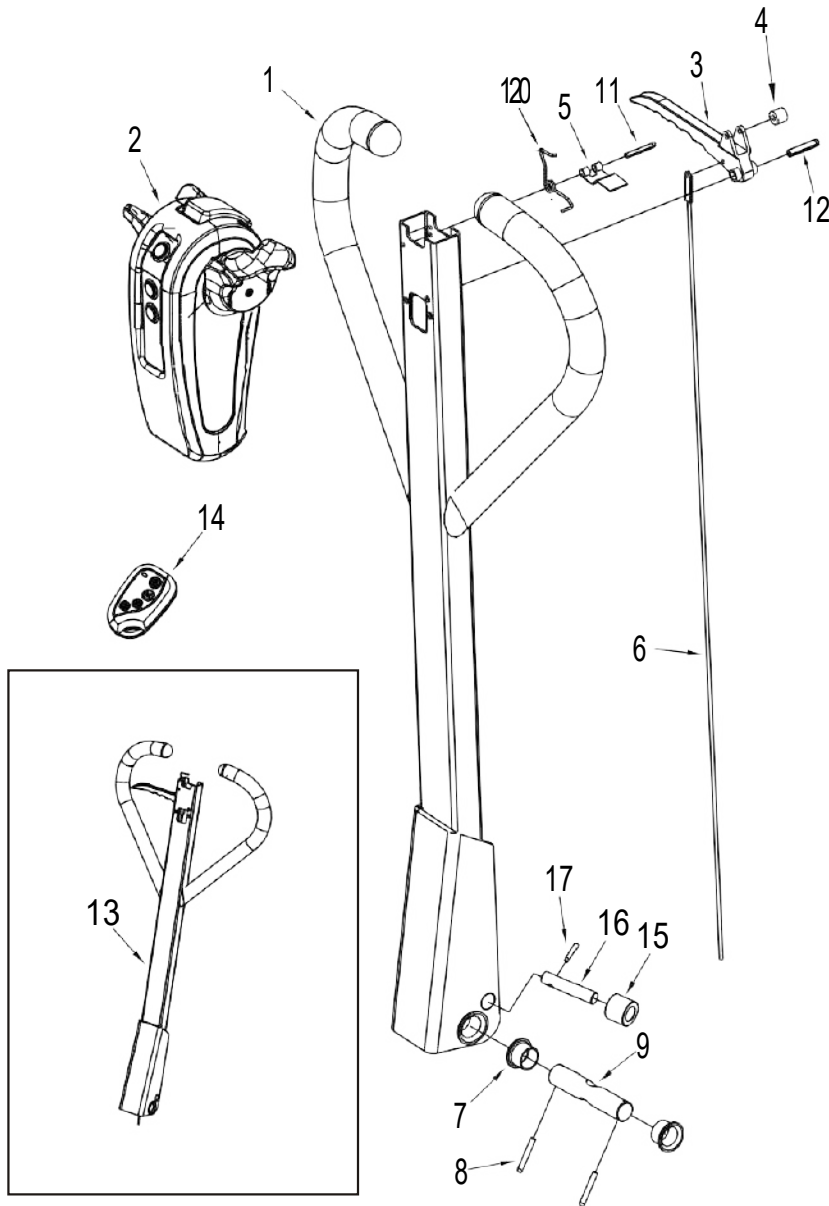


Fig.1 Handle assy.

Item	Part No.	DESCRIPTION	QTY
1	30301015	Handle body	1
2	30301012	Control box assy.	1
	31201007	Control box assy.(Intelligent control) <b>option</b>	(1)
3	31202001	Relief handgrip	1
4	30102088	Positioning roller	1
5	30102089	Blade Spring	1
6	30102090	Relief chain	1
7	21402003	Self-lubricating bearing 20X30X16.5	2
8	20901001	Spring pin Ø5x35	2
9	30102020	Handle shaft for standard pump	1
	30102145	Handle shaft for quick-lift pump	1
10	30102091	Torsional Spring	1
11	20901005	Spring pin	1
12	20901006	Spring pin	1
13	30301002	Handle body assy.	1
14	31101080	Remote control (Intelligent control) <b>option</b>	2
15	31102038	Pressure Roller with bearing	1
16	31102039	Roller Axle	1
17	20901010	Spring pin 4*20	1

Fig.2 Control box assembly

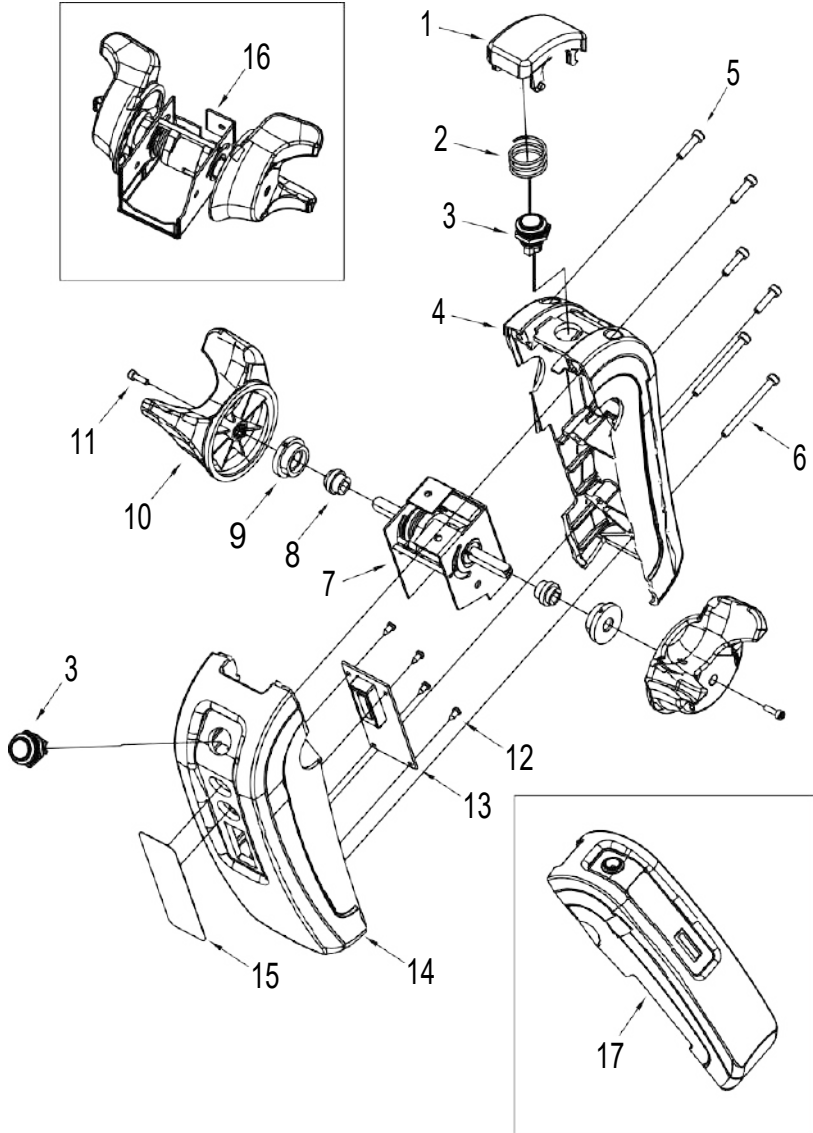


Fig.2 Control box

Item	Part No.	DESCRIPTION	QTY
1	30202004	Emergency reverse button	1
2	30202005	Spring	1
3	10301010	Inching switch	2
4	30302001	Bottom cover	1
5	20101402	Screw	4
6	20101401	Screw	2
7	10301012	Potentiometer	1
8	30202008	Inner spacer column	2
9	30202007	Outer spacer column	2
10	30202009	Control Knob	2
11	20101301	Screw	2
12	20301002	Screw	4
13	10301011	Monitor	1
	10301061	Monitor (Intelligent control) <b>option</b>	1
14	30302002	Control box cover	1
15	30202006	Sticky board	1
16	31101012	Potentiometer assy.(Item7~11)	1
	31201001	Handle upper cover assy.	1
17	31201009	Handle upper cover assy.(Intelligent control) <b>option</b>	1

Fig. 3 Driving system

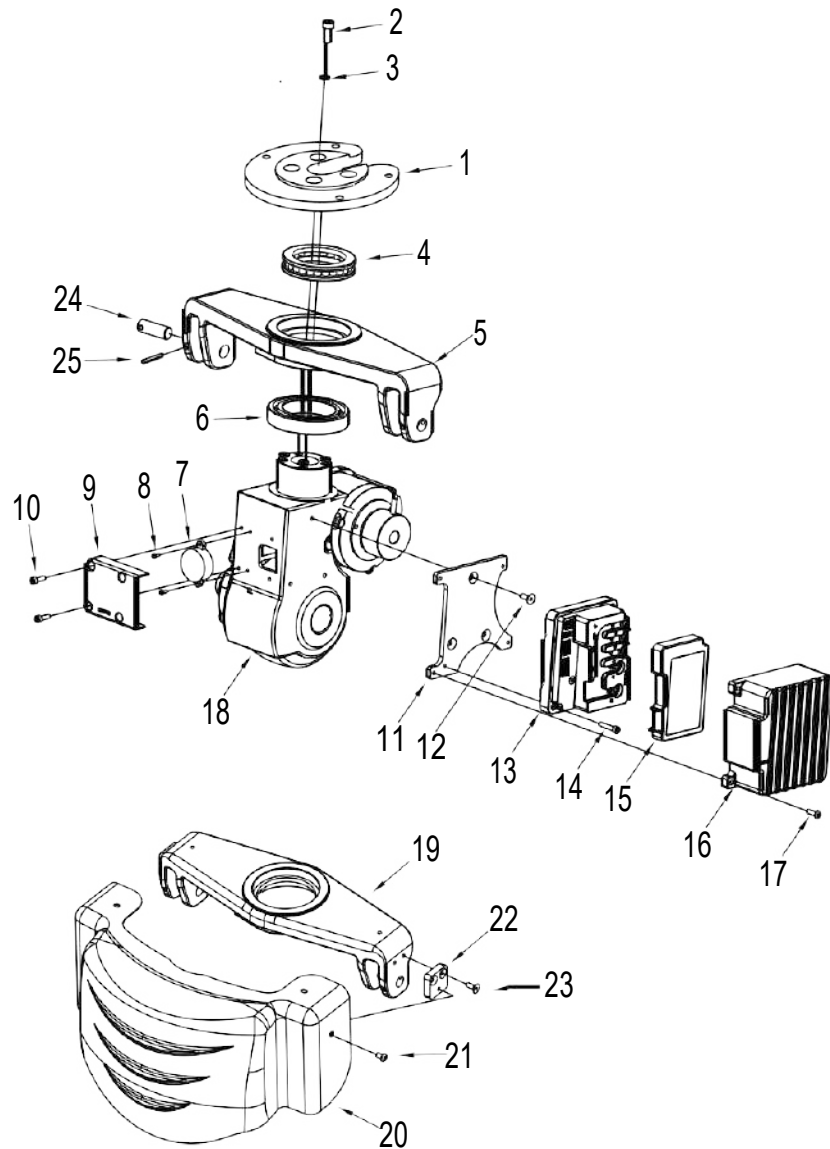


Fig.3 Driving system

Item	Part No.	DESCRIPTION	QTY
1	30102008	Connecting plate	1
2	20101802	Screw M8X25	4
3	20601001	Washer	4
4	20503001	Plane bearing 51113	1
5	31302001	Continuous frame (Without drive wheel cover)	1
6	20501002	Bearing 6013-2RS	1
7	10301043	Buzzer	1
8	20102402	Screw	2
9	31102002	Wires cover	1
10	20101505	Screw	4
11	31102004	Mounting plate for controller	1
12	20103602	Screw	3
13	10301016	Controller	1
	10301062	Controller (Intelligent control) option	1
14	20101502	Screw	2
15	21102021	Wires cover for controller	1
16	31102001	Controller cover	1
17	20304502	Screw	3
18	31101001	Driving unit assy.	1
19	30202030	Continuous frame (~2020.04.30)	1
	31302003	Continuous frame (2020.05.01~)	1
	30302006	Cover (~2020.04.30)	1
20	31502005	Cover standard 30mm ground clearance (2020.05.01~)	1
	31502006	Cover option 60mm ground clearance (2020.05.01~)	1
21	20102603	Screw M6*10	4
22	21102040	Overplate	2
23	20103603	Screw	4
24	30102007	Coupling shaft	2
25	20901002	Spring Pin Ø5x40	2

Fig. 4 Drive assembly

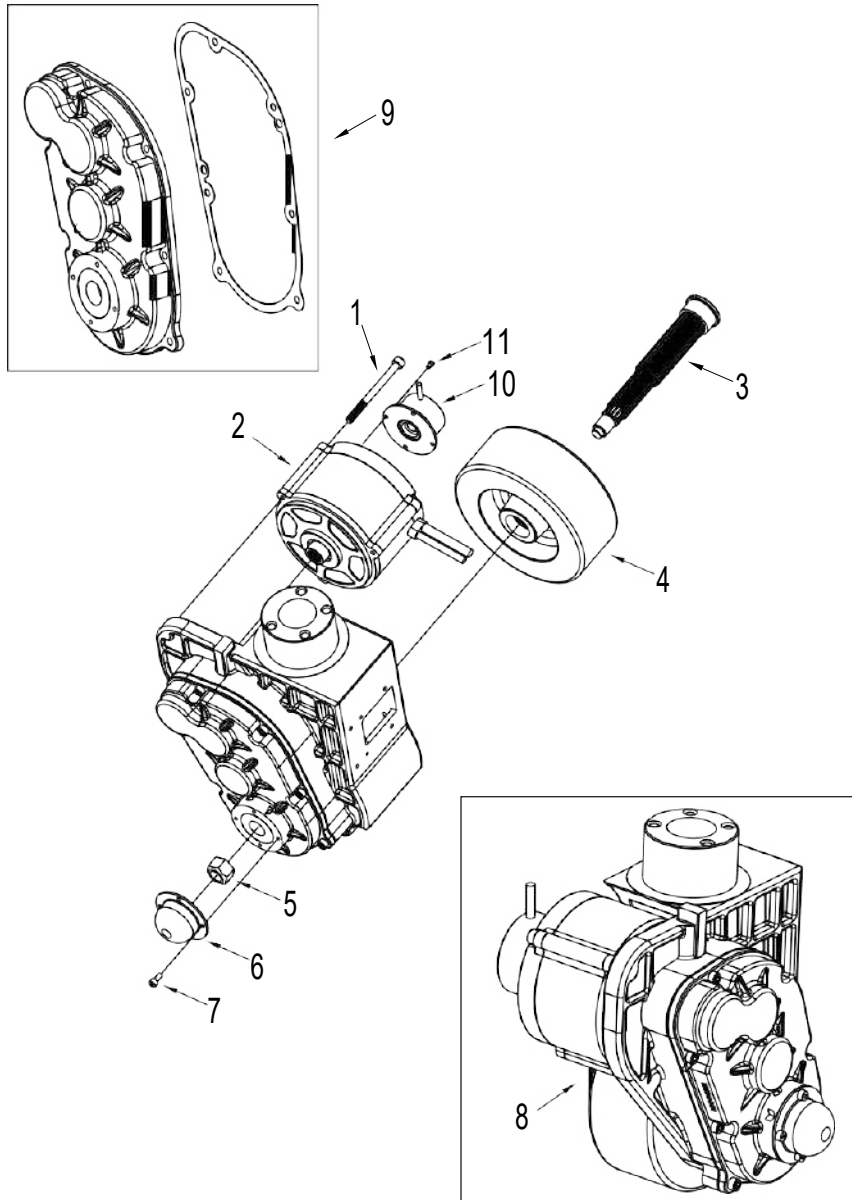


Fig.4 Driving unit assy.

Item	Part No.	DESCRIPTION	QTY
1	20101605	Screw	3
2	31101003	Motor assy. 0.75Kw	1
3	31102013	Axle	1
	31102003	Drive wheel Ø140*55mm (~2020.11.30)	1
4	31102129	Drive wheel Ø140*55mm (2020.12.01~)	1
	31102090	Drive wheel Ø140*55mm with REACH certified	1
5	20401004	Nut	1
6	31102007	Nut cap	1
7	20303003	Screw M4*10	4
8	31101001	Drive unit assy.	1
9	31101082	Gearbox cover assy.	1
10	31101002	Brake assy.	1
11	20105001	Screw M4*10	3

Fig.5 Hydraulic system-1(Standard pump)

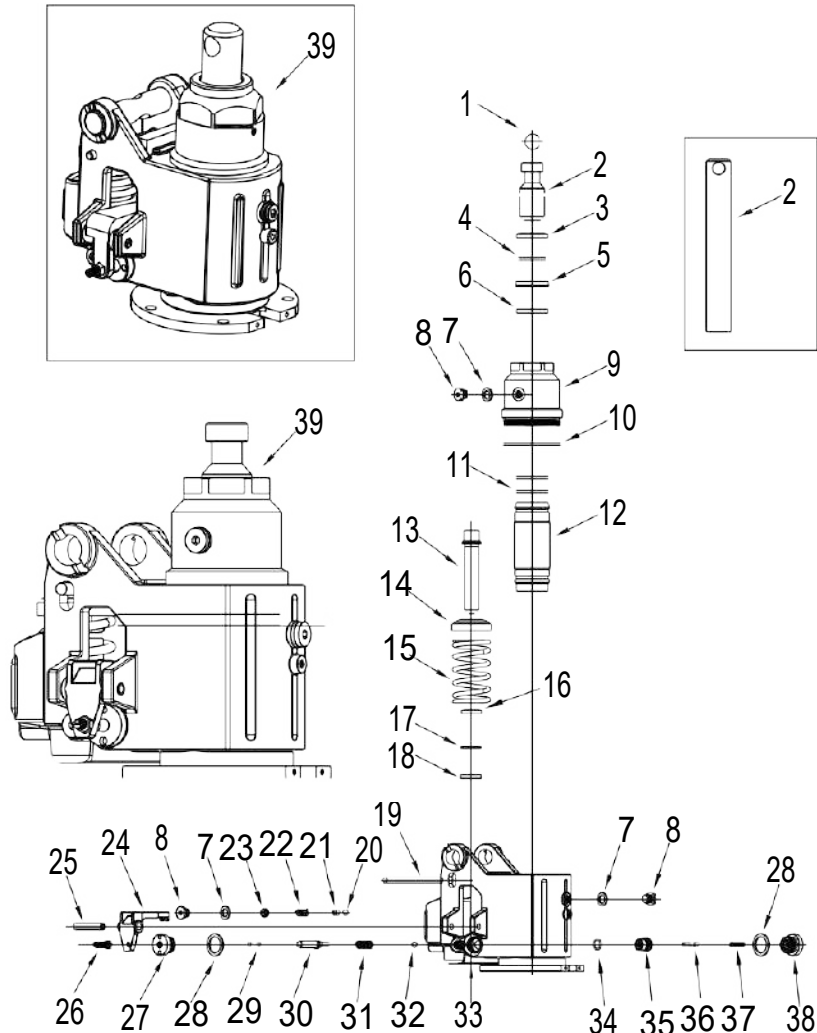


Fig.5 Hydraulic system (Standard)

Item	Part No.	DESCRIPTION	QTY
1	30102146	Steel Ball (~2019.09.30)	1
2	30102147	Piston Rod (~2019.09.30)	1
	31302002	Piston Rod (2019.10.01~)	1
3	30102148	Dust Ring Ø32	1
4	30102149	O-Ring Ø32	1
5	30102150	Seal Washer Ø32	1
6	30102151	Wear-resistant belt	1
7	30102152	Washer	3
8	30102153	Plug	3
9	30102154	Outer cylinder	1
10	30102155	O-ring	1
11	30102156	O-ring	2
12	30102157	Inner cylinder	1
13	30102158	Small pump core	1
14	30102159	Spring cap	1
15	30102160	Pump core spring	1
16	30102161	Dust ring	1
17	30102162	Sealing ring	1
18	30102163	Seal washer	1
19	30102164	Positioning rod	1
7		Washer	
8		Plug	
20		Steel Ball	
21	31201010	Safety valve seat	1set
22		Spring	
23		Screw	
24	30102169	Switch board	1
25	30102170	Spring pin	1
26	30102171	Screw	1
27		Nut	
28		Washer	
29		O-ring	
30	31201011	Push rod	1set
31		Spring	
32		Steel Ball	
33	30102178	Oil pump body	1
34		O-ring	
35		Valve body	
36		Valve core	
37	31201012	Spring	1set
28		Washer	
38		Screw	
39	30101005	Oil pump assy. (~2019.09.30)	1
	31301001	Oil pump assy. (2019.10.01~)	1
40	31201002	Pump seal kits(Items 3/4/5/16/18)	1

Fig.6 Hydraulic system-2(Quick-Lift pump)

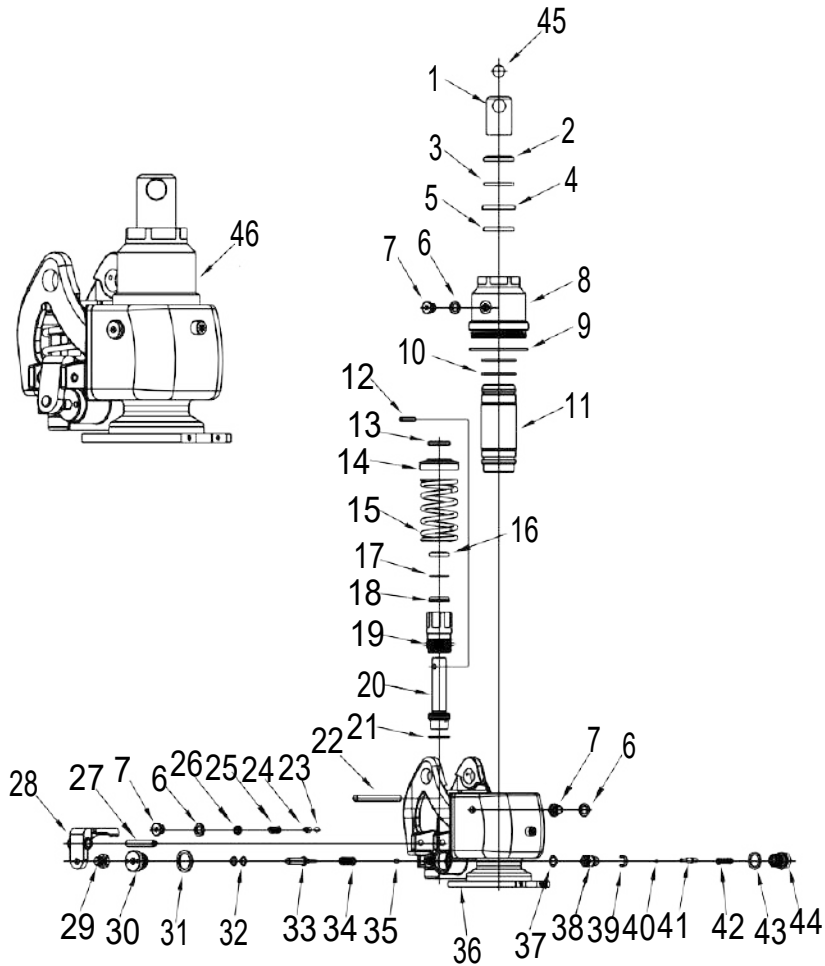


Fig.6 Hydraulic system (Quick-lift pump)

Item	Part No.	DESCRIPTION	QTY
1	30102184	Piston Rod	1
2	30102185	Dust ring	1
3	30102186	O-ring	1
4	30102187	Seal washer	1
5	30102188	Wear-resistant belt	1
6	30102152	Washer	3
7	30102153	Plug	3
8	30102189	Outer cylinder	1
9	30102190	O-ring	1
10	30102191	O-ring	2
11	30102192	Inner cylinder	1
12	30102193	Cylindrical pin	1
13	30102194	Spring cap pad	1
14	30102159	Spring cap	1
15	30102195	Pump core spring	1
16	30102161	Dust ring	1
17	30102162	Sealing ring	1
18	30102163	Seal washer	1
19	30102196	Inner cylinder	1
20	30102197	Small pump core	1
21	30102198	Copper washer	1
22	30102164	Positioning rod	1
6		Washer	
7		Plug	
23	31201013	Steel Ball	1set
24		Safety valve seat	
25		Spring	
26		Screw	
27	30102170	Spring pin	1
28	30102169	Switch board	1
29	30102201	Screw	1



Fig.6 Hydraulic system-2(Quick-Lift pump)

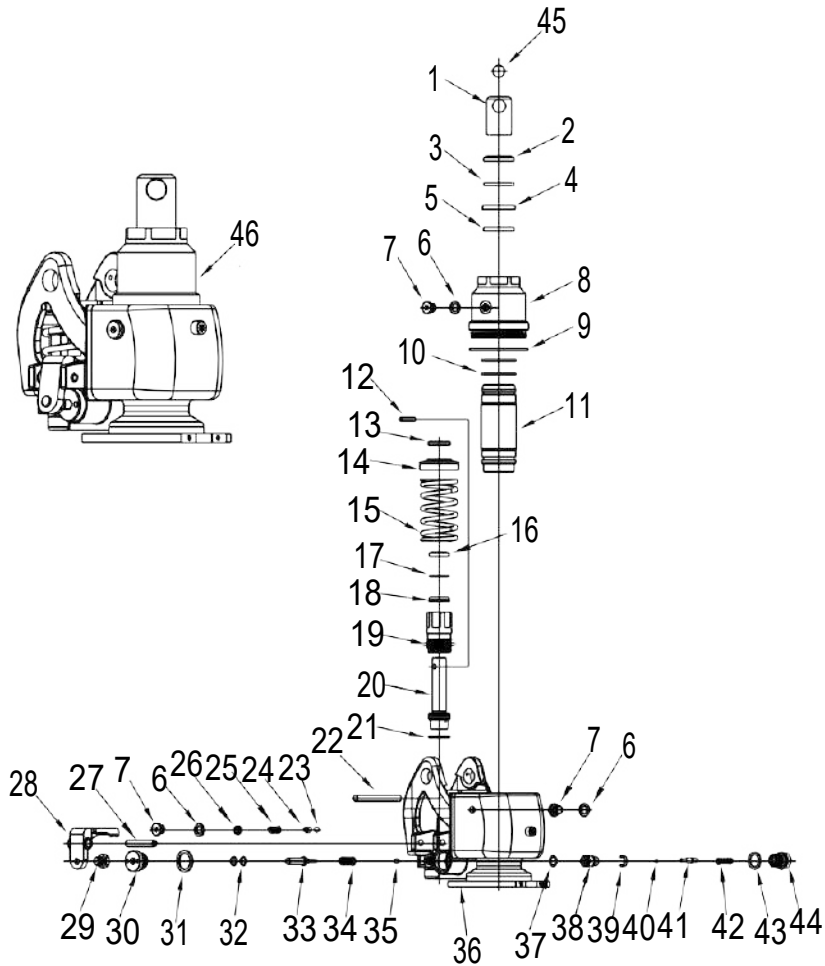


Fig.6 Hydraulic system (Quick-lift pump)

Item	Part No.	DESCRIPTION	QTY
30		Nut	
31		Washer	
32	31201014	O-ring	<b>Relief valve assy.</b> (Only supply valve assy.) 1set
33		Push rod	
34		Spring	
35		Steel Ball	
36	30102202	Oil pump body	1
37		O-ring	
38		Valve body	
39		Slow drop resilient trip	
40	31201015	Screw	<b>Check valve assy.</b> (Only supply valve assy.) 1set
41		Valve core	
42		Spring	
43		Combined seal washer	
44		Screw	
45	30102146	Steel Ball	1
46	30101046	Quick-lift pump assy.	1
47	31201003	Pump seal kits(Item 2/3/4/16/18)	1

Fig. 7 Frame

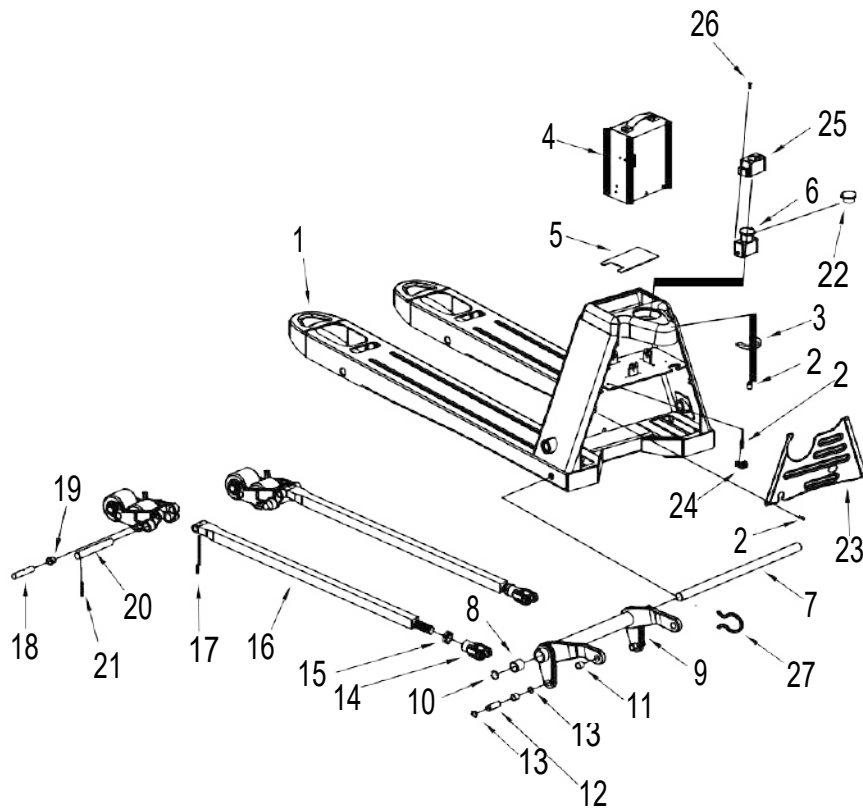


Fig. 7 Frame

Item	Part No.	DESCRIPTION	QTY
	31101036	Frame 550*1150	1
1	31101041	Frame 685*1150	1
	31101042	Frame 685*1220	1
2	20304502	Screw	2
3	31102041	Cover plate	1
	10301047	Li-Battery 48V/10Ah (standard) (~2020.11.30)	1
	10301051	Li-Battery 48V/15Ah (option) (~2020.11.30)	1
4	10301092	New Li-Battery 48V/10Ah (standard) (2020.12.01)	1
	10301091	New Li-Battery 48V/15Ah (option) (2020.12.01)	1
5	30102022	Cushion block	1
6	10301002	Emergency Stop Switch	1
7	30102021	Long Shaft (550)	1
	30102031	Long Shaft (685)	1
8	21401001	Self-Lubricating Bearing 30X25X30	2
9	31401004	Rocker Arm (550) PPT18H	1
	31401005	Rocker Arm (685) PPT18H	1
10	20802002	Gasket Ø25	2
11	21401002	Self-Lubricating Bearing 16X18X15	4
12	30102024	Shaft	2
13	20801001	Gasket Ø16	4
14	30102059	Joint	2
15	20403001	Nut M22X1.5	2
	30101014	Connecting Rod (1150)	2
	30101015	Connecting Rod (1220)	2
17	20901004	Spring Pin Ø5x25	2
18	30102058	Shaft	2
19	21402002	Self-Lubricating Bearing 16X18X17	4
20	30102025	Shaft	2
21	20901002	Spring Pin Ø5x40	2
22	10301008	Emergency Stop Switch Cover	1
23	31102042	Cover 550	1
	31102043	Cover 685	1
24	30202038	Cables sleeve	1
25	31402002	Rubber plug	1
26	20103501	Screw	2
	31102054	Nylon gasket 3mm	*

Fig. 8 Double loading wheel assembly

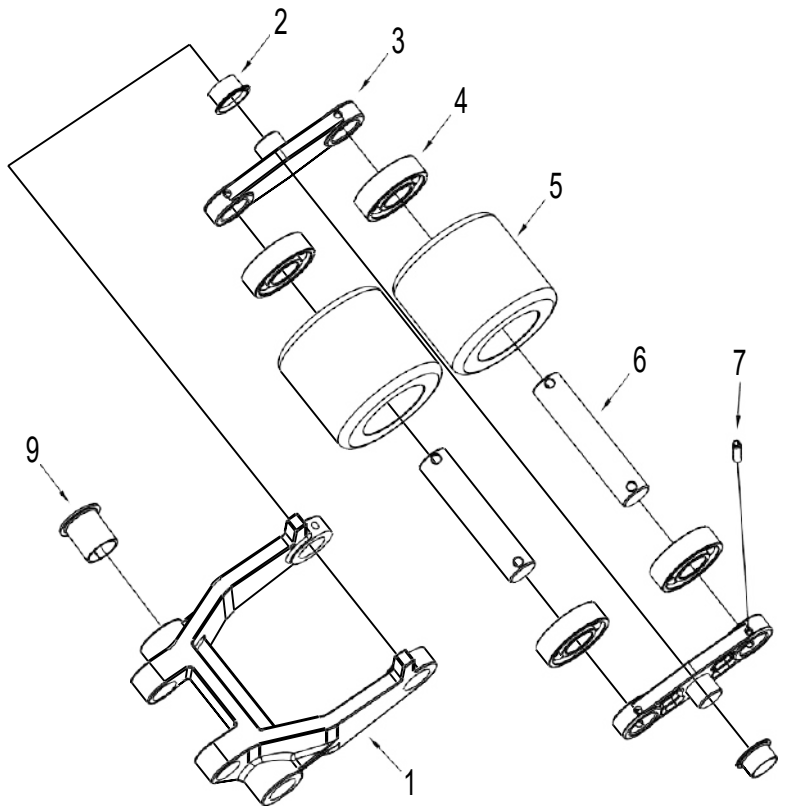


Fig.8 Double loading wheel ASY.

Item	Part No.	DESCRIPTION	QTY
1	30102057	Wheel Fork	2
2	21402001	Self-Lubricating Bearing 18X20X12	4
3	30102027	Tandem Mounting Plate	4
4	20501001	Bearing 6204-2RS	8
5	30102029	Double PU Loading Wheel Ø80*70	4
	31102091	Double PU Loading Wheel 80*70 with REACH certified	4
6	30102028	Axle	4
7	20901003	Spring Pin Ø5x30	8
8	30101025	Double PU Loading Wheel ASY.	2
	30101066	Double PU Loading Wheel ASY. with REACH certified	2
9	21402004	Self-Lubricating Bearing 20X23X26.5	2

Fig. 9 Single loading wheel assembly

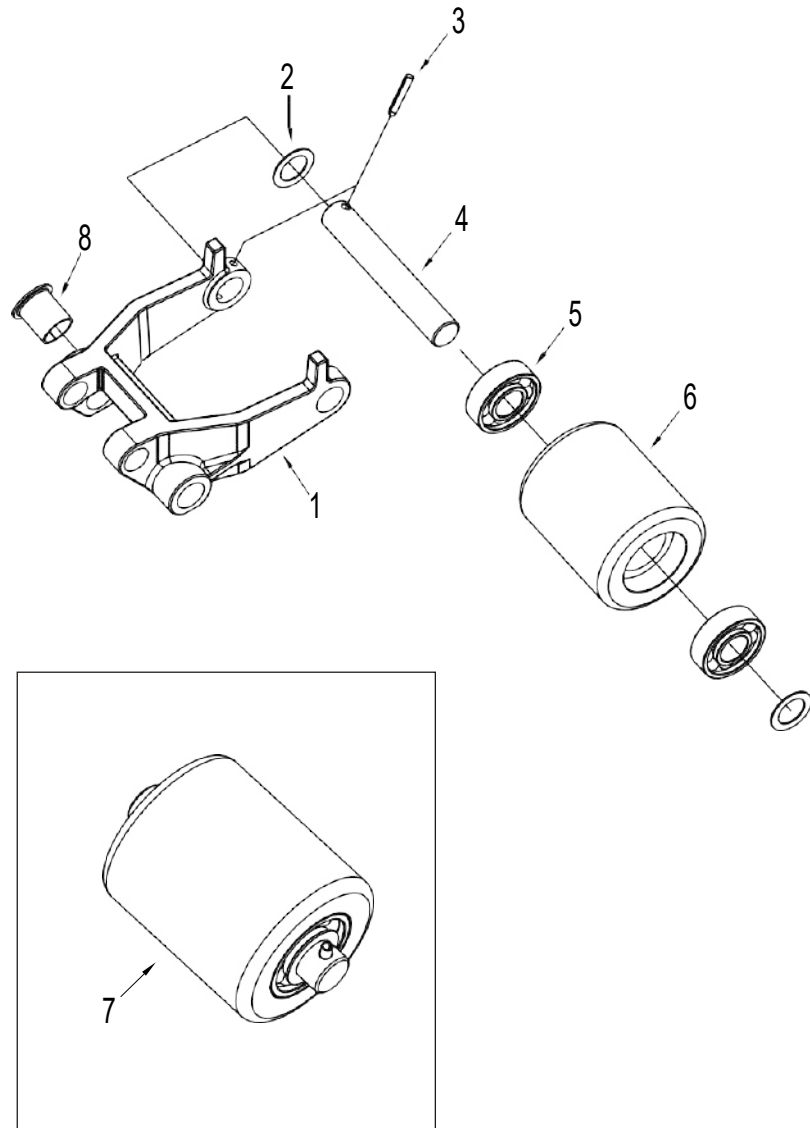


Fig.9 Single loading wheel ASY.

Item	Part No.	DESCRIPTION	QTY
1	30102057	Wheel Fork	2
2	30102082	Washer	4
3	20901003	Spring Pin Ø5x30	2
4	30102080	Axle	2
5	20501001	Bearing 6204-2RS	4
6	30102081	Single PU Loading Wheel 80*93	2
	31102092	Single PU Loading Wheel 80*93 with REACH certified	2
7	30101026	Single PU Loading Wheel ASY.	2
	30101067	Single PU Loading Wheel ASY. with REACH Certified	2
8	21402004	Self-Lubricating Bearing 20X23X26.5	2

Fig.10 Charger

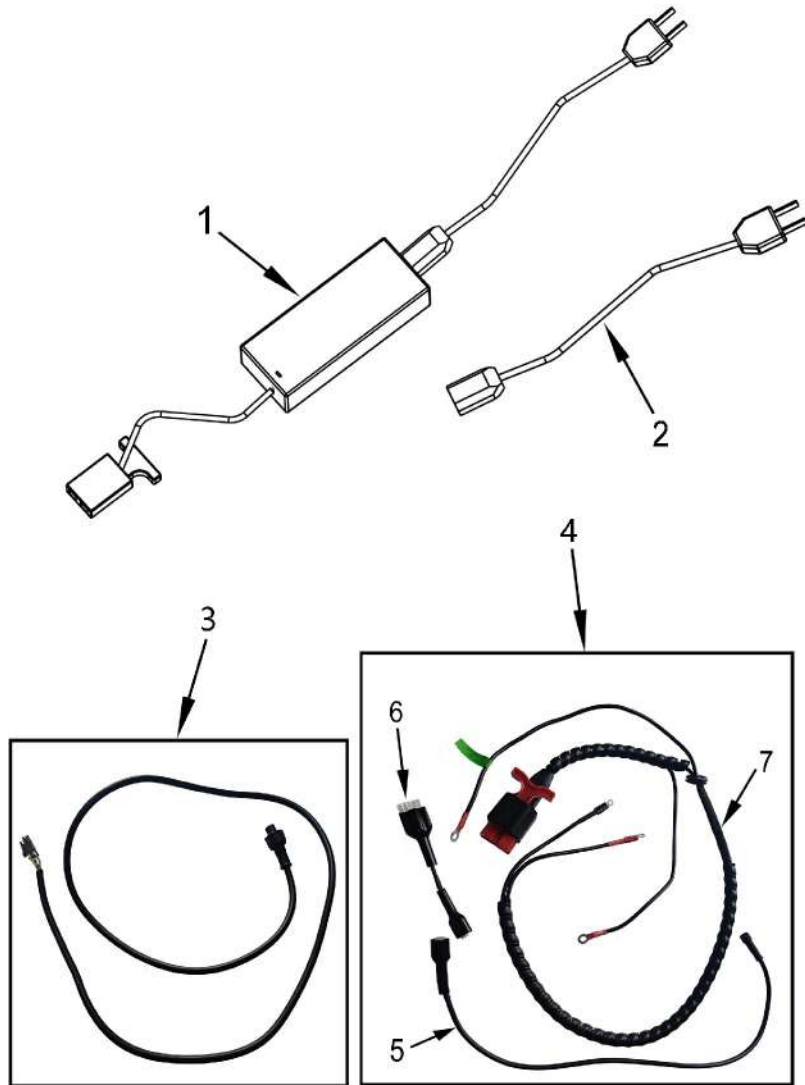


Fig.15-1 Charger and cable harness

Item	Part No.	DESCRIPTION	QTY
1	10301063	Old Charger 48V/2A(100~240V) European standard	1
	10301064	Old Charger 48V/2A(100~240V) Australian standard	1
	10301065	Old Charger 48V/2A(100~240V) American standard	1
	10301066	Old Charger 48V/2A(100~240V) British standard	1
	10301071	Old Charger 48V/2A(100~240V) Indian standard	1
	10301072	Old Charger 48V/2A(100~240V) Brazilian standard	1
	10301073	Old Charger 48V/2A(100~240V) Japanese Standard(PSE certified)	1
	10301074	Old Charger 48V/2A(100~240V) South African standard	1
	10301075	Old Charger 48V/2A(100~240V) Israeli standard	1
	10301076	Old Charger 48V/2A(100~240V) Italian standard	1
	10301085	Old Charger 48V/2A(100~240V) Switzerland	1
	10301086	Old Charger 48V/2A(100~240V) Germany standard	1
	10301067	Old Quick charger 48V/5A(100~240V) European standard (Option)	1
	10301068	Old Quick charger 48V/5A(100~240V) Australian standard (Option)	1
(1)	10301069	Old Quick charger 48V/5A(100~240V) American standard (Option)	1
	10301070	Old Quick charger 48V/5A(100~240V) British standard (Option)	1
	10301077	Old Quick charger 48V/5A(100~240V) Indian standard (Option)	1
	10301078	Old Quick charger 48V/5A(100~240V) Brazilian standard (Option)	1
	10301079	Old Quick charger 48V/5A(100~240V) Japanese Standard(PSE certified) (Option)	1
	10301080	Old Quick charger 48V/5A(100~240V) South African standard (Option)	1
	10301081	Old Quick charger 48V/5A(100~240V) Israeli standard (Option)	1
	10301082	Old Quick charger 48V/5A(100~240V) Italian standard (Option)	1
	10301083	Old Quick Charger 48V/5A(100~240V) Switzerland (Option)	1
	10301084	Old Quick Charger 48V/5A(100~240V) Germany standard(Option)	1
	10301098	New Greatway Charger 48V/2A European standard	1
	10301105	New Greatway Charger 48V/2A Australian standard	1
	10301099	New Greatway Charger 48V/2A American standard 110V	1
	10301106	New Greatway Charger 48V/2A British standard	1
10301107	New Greatway Charger 48V/2A Indian standard	1	
1	10301108	New Greatway Charger 48V/2A( Brazilian standard	1
	10301109	New Greatway Charger 48V/2A Japanese Standard(PSE certified)	1
	10301110	New Greatway Charger 48V/2A South African standard	1
	10301111	New Greatway Charger 48V/2A Israeli standard	1
	10301112	New Greatway Charger 48V/2A Italian standard	1
	10301113	New Greatway Charger 48V/2A Switzerland	1
	10301114	New Greatway Charger 48V/2A Germany standard	1

Fig.10 Charger

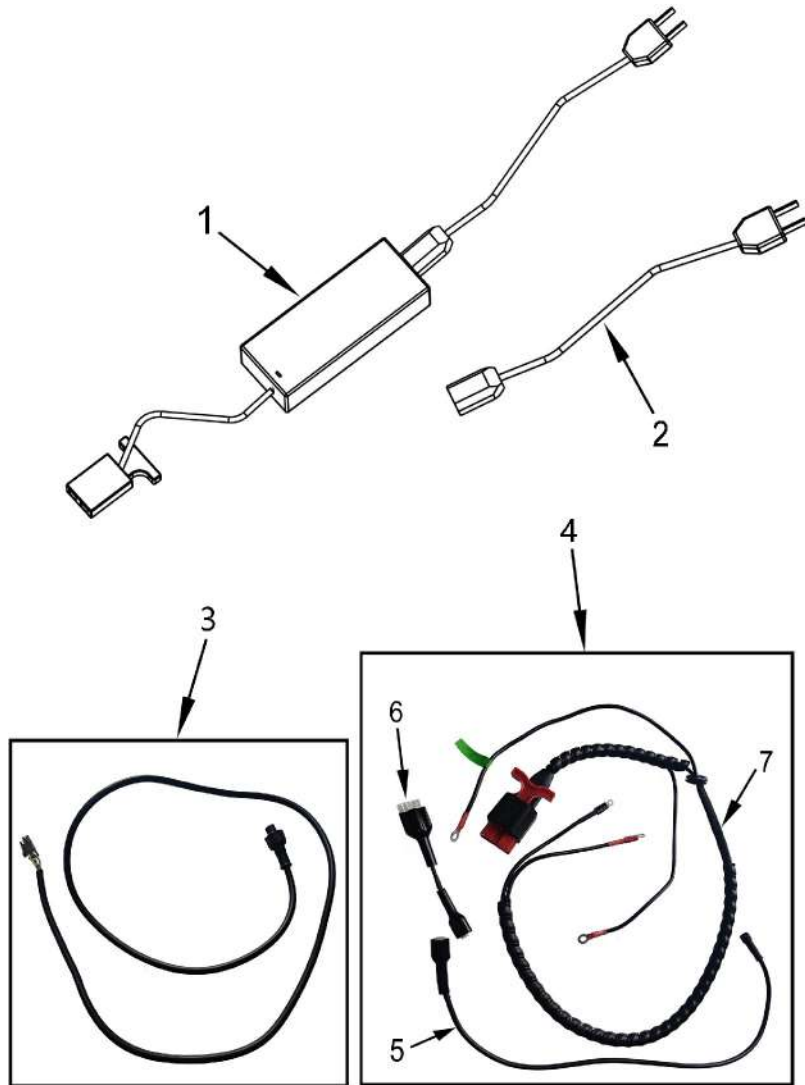


Fig.15-2 Charger and cable harness

Item	Part No.	DESCRIPTION	QTY
	10301100	New Greatway Quick charger 48V/5A European standard (Option)	1
	10301115	New Greatway Quick charger 48V/5A Australian standard (Option)	1
	10301101	New Greatway Quick charger 48V/5A American standard (Option) 110V	1
	10301116	New Greatway Quick charger 48V/5A British standard (Option)	1
	10301117	New Greatway Quick charger 48V/5A Indian standard (Option)	1
(1)	10301118	New Greatway Quick charger 48V/5A Brazilian standard (Option)	1
	10301119	New Greatway Quick charger 48V/5A Japanese Standard(PSE certified) (Option) 110V	1
	10301120	New Greatway Quick charger 48V/5A South African standard (Option)	1
	10301121	New Greatway Quick charger 48V/5A Israeli standard (Option)	1
	10301122	New Greatway Quick charger 48V/5A Italian standard (Option)	1
	10301123	New Greatway Charger 48V/5A Switzerland (Option)	1
	10301124	New Greatway Charger 48V/5A Germany standard(Option)	1
	10302059	Plug(American Standard) for New Greatway 48V/2A charger	1
	10302060	Plug(European Standard) for New Greatway 48V/2A charger	1
	10302061	Plug(Australian Standard) for New Greatway 48V/2A charger	1
	10302062	Plug(British Standard) for New Greatway 48V/2A charger	1
	10302063	Plug(Indian Standard) for New Greatway 48V/2A charger	1
	10302064	Plug(Brazilian Standard) for New Greatway 48V/2A charger	1
2	10302065	Plug(Japanese Standard with PSE certified) for New Greatway 48V/2A charger	1
	10302066	Plug(South African Standard) for New Greatway 48V/2A charger	1
	10302067	Plug(Israeli Standard) for New Greatway 48V/2A charger	1
	10302068	Plug(Italian Standard) for New Greatway 48V/2A charger	1
	10302069	Plug(Switzerland Standard) for New Greatway 48V/2A charger	1
	10302070	Plug(Germany Standard) for New Greatway 48V/2A charger	1
	10302059	Plug(American Standard) for New Greatway 48V/2A charger	1
	10302028	Plug(American Standard) for New Greatway 48V/5A quick charger	1
	10302027	Plug(European Standard) for New Greatway 48V/5A quick charger	1
	10302026	Plug(Australian Standard) for New Greatway 48V/5A quick charger	1
	10302029	Plug(British Standard) for New Greatway 48V/5A quick charger	1
	10302038	Plug(Indian Standard) for New Greatway 48V/5A quick charger	1
(2)	10302048	Plug(Brazilian Standard) for New Greatway 48V/5A quick charger	1
	10302049	Plug(Japanese Standard with PSE certified) for New Greatway 48V/5A quick charger	1
	10302050	Plug(South African Standard) for New Greatway 48V/5A quick charger	1
	10302032	Plug(Israeli Standard) for New Greatway 48V/5A quick charger	1
	10302051	Plug(Italian Standard) for New Greatway 48V/5A quick charger	1
	10302052	Plug(Switzerland Standard) for New Greatway 48V/5A quick charger	1
	10302053	Plug(Germany Standard) for New Greatway 48V/5A quick charger	1
3	10302018	Handle cables	1
4	10302019	Truck body cables	1
5	10302040	Truck body communication line	1
6	10302041	B+ lead wire for hydraulic motor	1
7	10302042	B- lead wire for hydraulic motor	1
8	10302043	Lead wire for lowering solenoid valve	1
9	10302044	Truck body cable harness integration	1